

VOLKSWAGEN · POWERTRAIN

**P1164**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P1164 · Volkswagen

# Fuel Temperature Sensor Range Performance

P1164 on Volkswagen vehicles indicates that the engine control module (ECM) has detected an implausible signal from the fuel temperature sensor, which is typically integrated into the fuel temperature sender. The ECM compares the sensor's output against expected values based on engine operating conditions and flags a performance range fault when the signal falls outside the valid range or behaves erratically.

SYSTEM

**Powertrain**

CODE TYPE

**Volkswagen specific**

SEVERITY

**Low**

FIX DIFFICULTY

**Intermediate**

AREA

**Fuel and air metering**

## Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or hesitation during acceleration, particularly when the engine is cold.
- Decreased fuel economy or poor engine performance under load.
- Hard starting or extended cranking times, especially in cold weather.
- In rare cases, the engine may enter limp mode, limiting power.
- Intermittent stalling or stumbling after refueling.

## Common causes, most likely first

- 1 Faulty fuel temperature sensor (integrated into the fuel temperature sender).
- 2 Damaged or corroded wiring harness or connector at the sensor.
- 3 Poor electrical connection due to loose pins or water intrusion.
- 4 Failed engine control module (ECM) or software glitch (less common).
- 5 Contaminated fuel or fuel system issues affecting sensor readings.
- 6 Open or short circuit in the sensor circuit.
- 7 Extreme ambient temperatures causing sensor signal out of range (rare).



## How to diagnose and fix it

- 1 Perform a visual inspection of the fuel temperature sensor and its wiring for damage, corrosion, or loose connections.
- 2 Use a scan tool to read live data from the fuel temperature sensor and compare it to ambient and engine temperature after a cold soak.
- 3 Check the sensor's resistance with a multimeter and compare to Volkswagen specifications for the given temperature.
- 4 Inspect the wiring harness for continuity and shorts between the sensor and ECM, repairing as needed.
- 5 If the sensor is faulty, replace it with a genuine or OEM-equivalent part, then clear the code and verify.
- 6 Check for technical service bulletins (TSBs) or ECM software updates that may address false setting of P1164.
- 7 After repairs, perform a road test and monitor live data to ensure the sensor signal is plausible under all conditions.

## Fuel Temperature Sensor Diagnostic Traps

- A common misdiagnosis is replacing the fuel temperature sensor when the real issue is a chafed wire in the harness near the engine block, which can short intermittently as the engine moves.
- The fuel temperature sensor on many Volkswagens is part of the fuel temperature sender, and replacing just the sensor element may not be possible; the entire sender unit might need replacement.
- P1164 can be set by a faulty coolant temperature sensor if the ECM cross-checks fuel and coolant temperatures for plausibility, so always verify coolant sensor readings as well.
- After replacing the sensor, some Volkswagen models require a adaptation reset or a drive cycle to relearn the sensor's range before the code will clear permanently.
- In rare cases, a weak battery or charging system issue can cause voltage spikes that corrupt sensor signals and set P1164 without any sensor fault.

## Can I keep driving with P1164?

The vehicle is generally safe to drive with P1164 set, as it typically causes no immediate safety risk, but you should avoid heavy loads or aggressive driving until the fault is repaired to prevent potential performance issues. Have the vehicle diagnosed soon to prevent secondary problems and to ensure optimal fuel efficiency.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific Volkswagen model
- Basic hand tools (screwdrivers, socket set)
- Contact cleaner and dielectric grease



## Reading P1164

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Volkswagen): its meaning depends on the make.
- 1** Fuel and air metering.
- 64** The exact fault within that area.

## Often seen with

**P1163** Fuel Temperature Sensor Circuit Open/Short To B+ · **P1165** Bank 1 Long Term Fuel Trim Range 1 Lower Lean Limit Exceeded · **P1163** HO2S11 Slow Response Bank 1 Sensor 1 · **P1165** Swirl Control Valve Control Vacuum Switch · **P1163** HO2S11 Slow Response Bank 1 Sensor 1 · **P1165** HO2S11 Slow Response Bank 1 Sensor 1 · **P1163** HO2S Bank 2 Sensor 3 Lean System Or Low Voltage · **P1165** HO2S Cross Counts Bank 2 Sensor 2 · **P1163** HO2S Bank 2 Sensor 3 Lean System Or Low Voltage · **P1165** HO2S Cross Counts Bank 2 Sensor 2 · **P1163** Fuel Trim Adaptation Additive Per Ignition Bank 1 High · **P1165** Fuel Trim Adaptation Additive Per Ignition Bank 2 High · **P0116** Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input

## See it working

Watch the animated explainer [Helicopter Flight Simulator: Learn the Three Controls](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1164/>

